

Remarks

I. Status of claims

Claims 1-30 are pending.

II. Claim rejections under 35 U.S.C. § 112

The dependency of claim 22 has been changed to claim 21, addressing the Examiner's §112, second paragraph, concerns. The rejection under 35 U.S.C. § 112, second paragraph, now should be withdrawn.

III. Claim rejections under 35 U.S.C. § 102

The Examiner has rejected claims 1, 2, 10-12, 20-22, and 30 under 35 U.S.C. § 102(b) over Kumar (U.S. 5,963,664).

A. Claim 1

Independent claim 1 has been amended and now recites:

Claim 1 (currently amended): A machine-implemented method of encoding a target image of a scene captured at a first image plane, comprising:

computing a transformation (H) mapping at least three noncollinear points substantially coplanar on a scene plane in the target image to corresponding points in a reference image of the scene captured at a second image plane different from the first image plane;

ascertaining an epipole (e_{REF}) in the reference image from at least one point in the target image off the scene plane and at least one corresponding point in the reference image;

determining respective values of a scalar parameter Θ that map blocks of points in the target image to respective matching blocks of points in the reference image in accordance with a

motion model corresponding to $\vec{b}_{REF} = (H \cdot \vec{b}_{TARGET}) + \Theta \cdot \vec{e}_{REF}$,

wherein \vec{b}_{TARGET} is a vector that represents a point within a

respective one of the blocks of the target image and \vec{b}_{REF} is a vector that represents a point within a respective one of the blocks of the reference image; and

compressing the target image, wherein the compressing comprises encoding ones of the blocks of the target image in terms of the reference image and the respective vectors \vec{b}_{REF} that are specified by respective ones of the determined values of the scalar parameter Θ .

The rejection of claim 1 under 35 U.S.C. § 102(b) over Kumar should be withdrawn because Kumar does not expressly nor inherently disclose each and every element recited in the claim.

For example, Kumar does not expressly nor inherently disclose “compressing the target image, wherein the compressing comprises encoding ones of the blocks of the target image in terms of the reference image and the respective vectors \vec{b}_{REF} that are specified by respective ones of the determined values of the scalar parameter Θ ,” where $\vec{b}_{REF} = (H \cdot \vec{b}_{TARGET}) + \Theta \cdot \vec{e}_{REF}$, \vec{b}_{TARGET} is a vector that represents a point within a respective one of the blocks of the target image, and \vec{b}_{REF} is a vector that represents a point within a respective one of the blocks of the reference image.

In accordance with Kumar's disclosure, “three-dimensional mosaics find use ... in achieving efficient image and video compression...” (col. 3, lines 13-15). In particular (col. 17, lines 34-43):

3D mosaics can be used in applications where 2D mosaics presently find use. Specifically, since image redundancy is removed by combining sequences of images into mosaics, mosaics find use in video transmission, video storage and retrieval, and video analysis and manipulation. By using mosaics, less video data need be transmitted, stored, or analyzed. As such, the 3D mosaics generated by the system of the present invention will find use in many applications where image information needs to be efficiently manipulated, stored, and/or transmitted.

That is, in accordance with Kumar's teachings, three-dimensional mosaics are useful in achieving efficient image and video compression as a result of the fact that redundancy (i.e., overlapping regions; see, e.g., col. 8, lines 42-51) is removed in the process of generating the three-dimensional mosaics. Kumar does not even hint that a target image could be encoded in terms of a reference image and respective vectors \vec{b}_{REF} that are specified by respective ones of determined values of a scalar parameter Θ as defined in claim 1.

For at least this reason, the rejection of independent claim 1 under 35 U.S.C. § 102(b) over Kumar now should be withdrawn.

B. Claims 2 and 10

Each of claims 2 and 10 incorporates the elements of independent claim 1 and therefore is patentable over Kumar for at least the same reasons explained above.

C. Independent claim 11

Independent claim 11 recites elements that essentially track the pertinent elements of independent claim 1 discussed above. Therefore, independent claim 11 is patentable over Kumar for at least the same reasons explained above in connection with independent claim 1.

D. Claims 12 and 20

Each of claims 12 and 20 incorporates the elements of independent claim 11 and therefore is patentable over Kumar for at least the same reasons explained above.

E. Claim 21

Independent claim 21 recites elements that essentially track the pertinent elements of independent claim 1 discussed above. Therefore, independent claim 21 is patentable over Kumar for at least the same reasons explained above in connection with independent claim 1.

F. Claims 22 and 30

Each of claims 22 and 30 incorporates the elements of independent claim 21 and therefore is patentable over Kumar for at least the same reasons explained above.

IV. Claim rejections under 35 U.S.C. § 103

The Examiner has rejected claims 3-9, 13-19, and 23-29 under 35 U.S.C. § 103(a) over Kumar in view of Hsu (U.S. 5,742,710).

A. Claims 3-9

Each of claims 3-9 incorporate the elements of independent claim 1. Hsu does not make-up for the failure of Kumar to disclose or suggest the elements of independent claim 1 discussed above. Therefore claims 3-9 are patentable over Kumar and Hsu for at least the same reasons explained above in connection with independent claim 1.

B. Claims 13-19

Each of claims 13-19 incorporate the elements of independent claim 11. Hsu does not make-up for the failure of Kumar to disclose or suggest the elements of independent claim 11 discussed above. Therefore claims 13-19 are patentable over Kumar and Hsu for at least the same reasons explained above in connection with independent claim 11.

C. Claims 23-29

Each of claims 23-29 incorporate the elements of independent claim 21. Hsu does not make-up for the failure of Kumar to disclose or suggest the elements of independent claim 21 discussed above. Therefore claims 23-29 are patentable over Kumar and Hsu for at least the same reasons explained above in connection with independent claim 21.

VI. Conclusion

For the reasons explained above, all of the pending claims are now in condition for allowance and should be allowed.


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Respectfully submitted,

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